

REMARKS

I. Status of the Application

Claims 1-18 are pending in this application. In the February 2, 2006 office action, the Examiner:

1. Rejected claims 1, 14 and 18 under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 6,421,265 to Lien et al. (hereinafter "Lien") in view of U.S. Patent No. 6,353,548 to Helwig et al. (hereinafter "Helwig"); and
2. Deemed claims 2-13 and 15-17 allowable if rewritten to incorporate their respective base claims and any intervening claims.

In this response, applicants have amended claims 2, 3, 5, 6 and 15-18, and have added new claims 19-22. Applicant respectfully traverses the rejections of claims 1, 14 and 18 and requests reconsideration in view of the foregoing amendments and the following remarks.

II. The Combination of Lien and Helwig
Does Not Arrive at the Invention of Claim 1

For reasons that will be discussed below, the proposed combination of Lien and Helwig does not arrive at the invention of claim 1. As a consequence, claim 1 is allowable over the prior art.

A. The Present Invention

Claim 1 is directed to a CAM (content addressable memory) apparatus that includes two memory devices and a comparator device. The first memory device has a

word line input and at least one storage node for storing a first bit of a data word. The second memory device has a word line input and at least one storage node for storing a second bit of a data word. The nodes of the first memory device and the second memory device collectively store *two* data bit words. The comparator device compares the first and second stored bits with first and second precoded comparison bits. The first and second bits and the comparison bits are fed via four inputs. The comparator device also drives a hit node in the event of the first stored bit corresponding to the first comparison bit and the second stored bit corresponding to the second comparison bit.

B. Lien

Lien, in pertinent part, describes a ten transistor DRAM-based ternary CAM cell. (Lien at col. 7, lines 15-17). The cell includes two nodes 110A and 110B. Those cells basically carry complementary voltages representative of the same data bit. (See *id.* at col. 7, lines 55-67). During a refresh cycle, the values in the nodes 110A and 110B are compared to a data value provided to a data line D and, in inverted form, to an inverted data line D#. (*Id.* at col. 8, lines 49-55). Thus, Lien teaches a comparison of a single bit with another data bit, although the comparison operation compares both the bit value and its complement (opposite).

C. The Proposed Modification of Lien Does Not Arrive at a Device That Compares Two Bits of a Data Word With Two Stored Comparison Bit Values

Lien fails to disclose a device that compares first and second data bits of a data word to two comparison bits, and then drives a hit node based on the comparison. Fig.

3A of Lien, cited by the Examiner, shows a comparator 120A that compares complementary forms of the *same* bit to complementary values of the *same* comparison bit. Thus, Lien does not disclose comparing two different (*i.e. first and second*) data bits of a data word with two comparison bits.

Thus, Lien fails to disclose “a comparator device for comparing the first and second stored bits with first and second precoded comparison bits fed via four inputs and for driving a hit node in the event of the first stored bit corresponding to the first comparison bit and the second stored bit corresponding to the second comparison bit”, wherein the first and second stored bits are first and second bits of a data word, as claimed in claim 1. Furthermore, as will be discussed below, the modification of Lien proposed by the Examiner does not address this significant deficiency of Lien.

In the February 2, 2006 office action, the Examiner alleged that Lien taught all of the elements of claim 1, except that the comparator of Lien had four inputs. (Office action at p.3). Nevertheless, the Examiner alleged that it would have been obvious “to modify the Lien et al. comparator device to include more than two inputs”. (*Id.*)

It is respectfully submitted that it appears that the comparator 120A of Lien already includes four inputs. Regardless, even if the comparator 120A of Lien were modified to include four inputs, it would not change the fact that the comparator of Lien only compares a single data value (and its complement) to a single comparison value (and its complement). Thus, even as modified, Lien does not include a comparator that compares first and second data bits of a data word with first and second comparison bits.

For at least this reason, it is respectfully submitted that the proposed combination of Lien and Helwig does not arrive at a device that includes “a comparator device for

comparing the first and second stored bits [of a data word] with first and second precoded comparison bits fed via four inputs and for driving a hit node in the event of the first stored bit corresponding to the first comparison bit and the second stored bit corresponding to the second comparison bit”, as called for in claim 1. As a consequence, it is respectfully submitted that the obviousness rejection of claim 1 is in error and should be withdrawn.

III. Claims 14 and 18

Claims 14 and 18 also stand rejected as allegedly being obvious over Lien in view of Helwig. Claims 14 and 18 both depend from and incorporate all of the limitations of claim 1. As a consequence, it is respectfully submitted that the rejection of claims 14 and 18 should be withdrawn for at least the same reasons as those set forth above in connection with claim 1.

IV. New Claims 19-22

New claims 19-22 represent claims 2, 15, 16 and 17 rewritten in independent format. The Examiner has deemed the subject matter of those claims allowable. Accordingly, it is respectfully submitted that new claims 19-22 are in a condition for allowance.

V. The Remaining Claims

Claims 2-13 and 15-18 all depend from one claims 1, 14 or 19. For reasons discussed above in connection with those claims, claims 2-13 and 15-18 all contain

allowable subject matter.

More specifically, claim 2 has been amended to depend from claim 14 (which depends from claim 1). It is respectfully submitted that claim 2 is in a condition for allowance for at least those reasons set forth above in connection with claim 1. Claims 15-17 have all been amended to depend from claim 2 and are in a condition for allowance for at least the same reasons.

Claims 3-13 all contain subject matter that has already been deemed allowable by the Examiner. In particular, claims 3-13 all depend from claim 19, which represents claim 2 rewritten in independent format.

VI. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicants have made a patentable contribution to the art. Favorable reconsideration and allowance of this application is, therefore, respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'H. Moore', with a long horizontal flourish extending to the right.

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